



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,997	03/30/2004	Fusao Ishii	SONY-50T5469.01	6071
41066	7590	12/15/2005	EXAMINER	
WAGNER, MURABITO & HAO, LLP TWO NORTH MARKET STREET, THIRD FLOOR SAN JOSE, CA 95113				KIM, PETER B
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/813,997	ISHII, FUSAO	
	<b>Examiner</b>	<b>Art Unit</b>	
	Peter B. Kim	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-55 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-55 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 30 March 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. ____.
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>32004, 72005</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: ____.

## **DETAILED ACTION**

### ***Claim Objections***

Claim 8 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 1 is directed to a measurement device for optically measuring, and claim 8 is directed to the measurement device which is an optical measurement device.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 8, 9, 15, 17, 18, 20, 21, 26, 27, 32, 35-37, 42, 43, 48, and 51-54 are rejected under 35 U.S.C. 102(a) as being anticipated by Matsumoto et al. (Matsumoto) (2002/0111038).

Matsumoto discloses an exposure system, a system for patterning electronic elements on a substrate, and an electronic module (para 0035-0037) comprising a measurement device (para 0037) for measuring pattern on an nth layer of the substrate, a computing device (para 0038-0039, 0041, 0048) for calculating a correction between the existing pattern and an expected pattern for the nth layer, an image transformation component (para 0049-0056), for performing an image transformation on a pattern for an (n+1)th layer of the substrate, based on the

correction, to generate a corrected pattern; and a writing component (para 0060) for writing the corrected pattern onto (n+1)th layer using a programmable digital mask system (para 0035, 0036). Matsumoto does not explicitly disclose a radiation system and an optical system for guiding radiation from the radiation source to the mask, and from the mask to the substrate; however, such optical system is inherent to an exposure system for patterning electronic elements. Matsumoto discloses geometric pattern with a plurality of alignment marks (Fig. 5, ref. 3, 43) and correction made by a linear coordinate transform (Fig. 8, and 9).

Claims 1-3, 8, 17, 18, 20, 21, 26, 27, 35-37, 43, and 51-53 are rejected under 35 U.S.C. 102(b) as being anticipated by Hada (6,200,710).

Hada discloses an exposure system, a system for patterning electronic elements on a substrate, and an electronic module (col. 1, lines 5-12) comprising a measurement device (col. 4, lines 7-16) for measuring pattern on an nth layer of the substrate, a computing device (col. 4, line 63 - col. 5, line 5) for calculating a correction between the existing pattern and an expected pattern for the nth layer, an image transformation component (col. 3, line 62 – col. 4, line 20, col. 6, lines 33-47) for performing an image transformation on a pattern for an (n+1)th layer of the substrate, based on the correction, to generate a corrected pattern; and a writing component (col. 3, lines 62-67, col. 6, lines 33-47) for writing the corrected pattern onto (n+1)th layer using a programmable digital mask system (col. 4, lines 40-54). Hada discloses radiation source (charged particle beam). Hada does not explicitly disclose an optical system for guiding radiation from the radiation source to the mask, and from the mask to the substrate; however, such optical system is inherent to an exposure system for patterning electronic elements.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-7, 22-25 and 38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (Matsumoto).

Matsumoto discloses the claimed invention as discussed above; however, Matsumoto does not explicitly disclose that the radiation source is comprising a pulsed laser, infrared light, ultraviolet light or x-ray. However, it would have been obvious to one of ordinary skill of art to use the radiation sources in order to provide a radiation source of appropriate wavelength in order to obtain a pattern of desired resolution.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto in view of Dunn et al. (Dunn) (6,018,383).

Matsumoto discloses the claimed invention as discussed above; however, Matsumoto does not disclose the substrate which is a deformable flexible substrate. Dunn discloses a flexible substrate (10). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the flexible substrate of Dunn to the invention of Matsumoto in order to obtain a large area electronic module as taught by Dunn in the abstract.

Claims 11, 28, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto in view of Wohlstadter et al. (Wohlstadter) (2005/0052646).

Matsumoto discloses the claimed invention as discussed above; however, Matsumoto does not disclose the substrate which is a plastic. Wholstadter discloses a plastic substrate (1060). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a plastic substrate to the invention of Matsumoto in order to provide a nonconductive substrate as taught by Wholstadter in para 0449.

Claims 12, 29, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto in view of Sheats et al. (Sheats) (2004/0232943).

Matsumoto discloses the claimed invention as discussed above; however, Matsumoto does not disclose the substrate which is a metal. Sheats discloses a metal substrate (para 0051). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a metal substrate of Sheats to the invention of Matsumoto in order to provide a substrate with good light transmission as taught by Sheats in para 0051.

Claims 13, 30, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto in view of Deng et al. (Deng) (2001/0045362).

Matsumoto discloses the claimed invention as discussed above; however, Matsumoto does not disclose the substrate which is a paper. Deng discloses a paper substrate (para 0028). Therefore, it would have been obvious to one of ordinary skill in the art at the time

of the invention to provide a paper substrate of Deng to the invention of Matsumoto in order to image an actual sample of a pattern as taught by Deng in para 0028.

Claims 14, 31, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto in view of Park et al. (Park) (2005/0073664).

Matsumoto discloses the claimed invention as discussed above; however, Matsumoto does not disclose the substrate which is a glass. Park discloses a glass substrate (110). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a glass substrate to the invention of Matsumoto in order to provide a transparent substrate as taught by Matsumoto in para 0030.

Claims 16, 33, 49, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto in view of Sato et al. (Sato) (5,585,925).

Matsumoto discloses the claimed invention as discussed above; however, Matsumoto does not disclose the correction is made by a non-linear spline function. Sato discloses using spline function to make corrections in alignment (col. 8, lines 27-45). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the spline function of Sato to the invention of Matsumoto in order to make high precision alignment when linear conversion expression is insufficient as taught by Sato in col. 3, lines 48-54.

Claims 19, 34, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto in view of Jain et al. (Jain) (6,312,134).

Art Unit: 2851

Matsumoto discloses the claimed invention as discussed above; however, Matsumoto does not disclose an array of digital micro-mirror devices. Jain discloses digital micro-mirror devices (3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a digital micro mirror devices to the invention of Matsumoto because the use of such device is routine in the art in order to increase the throughput as taught by Jain in col. 1, lines 17-20.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter B. Kim whose telephone number is (571) 272-2120. The examiner can normally be reached on 8:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Peter B. Kim  
Primary Examiner  
Art Unit 2851

December 8, 2005